CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: June 22, 2004

TO: Mayor and Councilmembers

FROM: Creeks Division, Parks and Recreation Department

SUBJECT: SWITZER FOUNDATION GRANT AWARD AND CONTRACT FOR UCSB DNA STUDY IN SANTA BARBARA CREEKS

RECOMMENDATION: That Council:

A. Accept and authorize the Parks and Recreation Director to sign a grant agreement with the Robert and Patricia Switzer Foundation;

B. Increase FY 04 estimated revenues and appropriate $40,000 to the FY 04 Creeks Restoration and Water Quality Improvement Operating Fund; and

C. Approve and authorize the Parks and Recreation Director to execute a professional services agreement with the Regents of the University of California, Santa Barbara (UCSB) campus in the amount of $338,938 to undertake a DNA-Based Source Tracking Study in Arroyo Burro and Mission Creek.

DISCUSSION:

Background

Since May 2001, the Creeks Division has gathered extensive data on the presence of indicator bacteria (total coliform, fecal coliform, and enterococcus) in Santa Barbara creeks. This monitoring program has provided excellent baseline data on the presence of bacteria throughout the creeks and has identified specific areas of the creeks that are considered “hot spots” due to consistently high levels of bacterial pollution. However, the method used to monitor bacteria has a number of shortcomings. Most importantly, it does not discern between natural bacteria and human sources of fecal bacteria. As a result, the specific sources of pollution and the degree to which the bacteria are harmful to human health are not known.

REVIEWED BY: _____Finance _____Attorney

Agenda Item No._____

The need to develop better tools to determine the extent of harmful bacteria in creeks and coastal ocean is widely recognized by other local and State and Federal public agencies. Most recently, the Southern California Coastal Water Research Project (SCCWRP) which is based in Orange County, sponsored a comprehensive Microbiological Source Tracking Method Evaluation Study to evaluate the effectiveness of ten different microbiological source-tracking (MST) methods. In 2002, the Creeks Division provided $24,000 for the $450,000 study which was largely funded by the California State Water Resources Control Board, U.S. EPA, and a consortium of Southern California counties. Eighteen university researchers from throughout the country, including Dr. Patricia Holden from UCSB, participated in the study. The results of the study, which was undertaken under laboratory conditions, indicate that a number of the MST methods show promise. A key next step is to field test these methods in creek, estuarine, and coastal ocean environments.

Moreover, on a number of occasions, the Creeks Division and the Creeks Advisory Committee has discussed the need to better understand the sources of bacteria and their relative risk to humans and impact on aquatic resources. The Creeks Advisory Committee prioritized research for the FY04 budget, and recommended at its March 10, 2004, meeting that the City work with UCSB to pursue field studies.

Santa Barbara Creeks DNA-Based Source Tracking Study

The purpose of the study is to determine whether DNA-Based source tracking methods can discern the presence of human fecal material in Arroyo Burro and Mission Creek. The study will also identify the presence of fecal material from two other animals, which could include dogs and seagulls.

The study is a collaborative effort between the Creeks Division and UCSB. The UCSB research would be conducted under the direction of Dr. Patricia A. Holden, an Associate Professor in the Donald F. Bren School of Environmental Science and Management. Dr. Holden is actively involved in the research and development of DNA-Based source tracking methods, has conducted research on the Arroyo Burro estuary, and is interested in assisting the City develop improved tools to address creek water quality problems.

The project is organized in two phases, beginning in FY 2004 and continuing into FY 2006. Phase I will involve applying two DNA-Based technologies to samples of fecal source material and to environmental samples to verify the applicability of the specific methods. Phase II will apply the methods from Phase I to specific areas of Mission Creek and Arroyo Burro. Based on known high levels of bacterial contamination and the potential for humans to come into contact with polluted water, the three areas proposed for study include: 1) Old Mission Creek; 2) mid and lower Mission Creek including the lagoon; and, 3) lower Arroyo Burro with an emphasis on the lagoon and beach processes. The project will identify potential upstream and intermediate sources of contamination, and assess the fates of contamination during transport in the creek, through lagoons and into the ocean.

Switzer Foundation Grant Award

The Creeks Division has been awarded a $40,000 grant from the Robert and Patricia Switzer Foundation to support Dr. Holden's participation in the DNA study. Dr. Holden is a former Switzer Fellow and through its Leadership Grant Program, the Switzer Foundation provides grants of up to $40,000 to organizations that develop collaborative projects with Switzer Fellows. The intent of the program is to provide professional development opportunities for Switzer Fellows while enhancing the technical and scientific capacity of these organizations to address environmental issues.

Summary

Although microbial source tracking methods are still under development, undertaking field studies in Santa Barbara creeks will improve the ability of the Creeks Division to identify sources of human fecal material and develop specific pollution reduction strategies. Moreover, the results of this study will enhance our ability to provide Santa Barbara residents and visitors with accurate information about water pollution sources and solutions, and the degree to which creek and ocean water pose a human health risk. Lastly, it is anticipated that over time, these methods of determining contamination will replace current methods and become integral to ongoing creek water quality monitoring efforts.

BUDGET/FINANCIAL INFORMATION:

The DNA-Based study is organized in two phases that will be implemented over a 19-month period, beginning June 2004. The total cost of the study is $338,938 with Phase I costs of $128,720 and Phase II costs of $210,218. The $40,000 Switzer Foundation grant will be used to fund Dr. Holden. Creeks Division funds required for the project total $298,938. There is $225,000 available in Fiscal Year 2004 Creeks Operating Fund and the proposed Fiscal Year 2005 Creeks Division Operating Fund includes an additional appropriation of $75,000. The Creeks Division and Dr. Holden are also committed to seeking additional grant funds for this project. If additional grants are awarded, the funds will be used to replace existing appropriations.

PREPARED BY: Jill E. Zachary, Creeks Restoration/Clean Water Manager

SUBMITTED BY: Nancy L. Rapp, Acting Parks and Recreation Director

APPROVED BY: City Administrator's Office